First description of the female of the theridiid spider *Robertus golovatchi* (Araneae: Theridiidae)

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Abstract: The female of *Robertus golovatchi* Eskov, 1987 is described for the first time from Abkhazia and the male is also figured. The female is compared to another species known from the Caucasus *R. mediterraneus* Eskov, 1987.

Key words: Abkhazia, Caucasus.

Robertus O. P.-Cambridge, 1879 is a fairly large theridiid genus with 45 species described so far (PLATNICK 2012). All species except *R. calidus* Knoflach, 1995 from Congo are restricted to the Holarctic region. The genus is relatively poorly studied. Thirteen species, or more than 25 %, are known from only one sex: eight from females and five from males. In the West Palaearctic, four species are known from females, all of which are restricted to the western Mediterranean (from Spain to Italy). Only one species in the West Palaearctic, *Robertus golovatchi* Eskov, 1987, is known from just the male. While identifying material from western Caucasus we found two female specimens collected in the alpine zone that did not fit to any known species. Among the identified material we had one male belonging to *R. golovatchi*, also collected in the alpine zone. Among the six species reported from the Caucasus (cf. MIKHAILOV 1997, OTTO & TRAMP 2012) (*R. arundineti* (O. P.-Cambridge, 1871), *R. golovatchi*, *R. lividus* (Blackwall, 1836), *R. mediterraneus* Eskov, 1987, *R. neglectus* (O. P.-Cambridge, 1871), and *Robertus scoticus* Jackson, 1914), one species is known from a single male only. Considering that *R. golovatchi* is known from the alpine zone, and that males and females collected in the alpine zone have similar body size and colouration, we concluded that the uncertain females are conspecific with the male of *R. golovatchi*. The goal of this paper is thus to provide the first description of the female of *R. golovatchi*.

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Methods

Illustrations were made using both reflecting and transmitted light microscopes. Microphotographs were made with an Olympus Camedia E-520 camera attached to an Olympus SZX16 stereomicroscope at the Zoological Museum, University of Turku. Digital images were montaged using "CombineZM" image stacking software. Epigynes were macerated using KOH solution. The terminology adopted here follows KNOFLACH & THALER (2000) with one exception; we use the term "tegular apophysis" instead of "theridiid tegular apophysis" (= "median apophysis" sensu LEVI & LEVI 1962). All measurements are in mm.

Robertus golovatchi Eskov, 1987
Figs. 1-6, 10-11

R. g. ESKOV, 1987: 281, f. 1-2 (♂).

Material: Abkhazia. 1 ♂ (TNU-2641/24), Sukhum Distr., Buru Range, Dzykhva Mt., Kot-Kot River, 43°13'N, 41°07'E, ~ 2300 m a.s.l., alpine zone, 19.-26. June 2008 (M. Kovblyuk); 2 ♀♀ (TNU-2652/27), Gagra Distr., Gagra Range, Mamdzyshkha Mt., 43°18'N, 40°19'E, 1705-1866 m, *Abies, Fagus, Acer* forest and alpine meadows, 7.-15. June 2009 (M. Kovblyuk).

Comparative Material: *Robertus mediterraneus* Eskov, 1987 (Figs 7-9, 12-13) from Abkhazia: 1 ♀ (TNU-2639/49), Sukhum Distr., Gumysta Reserve, East Gumysta River, kordon Tsymur (43°10'N, 41°02'E, 420 m, wood with *Fagus, Acer* and *Castanea sativa*, 8.-16. June 2008 (M. Kovblyuk).

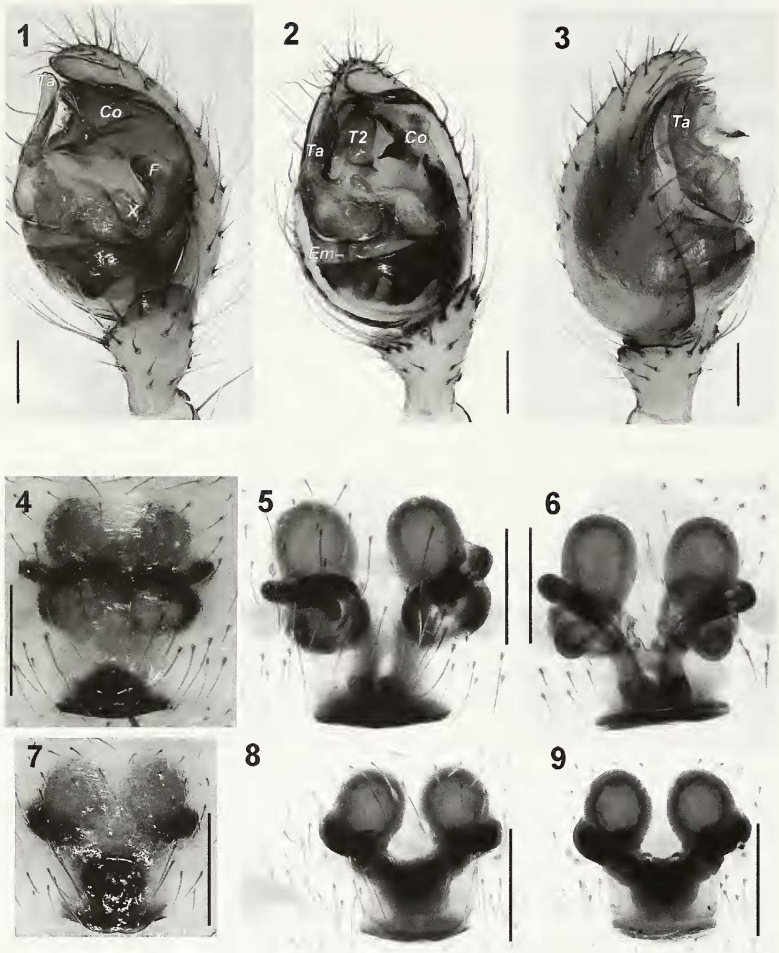
Diagnosis: Males of *R. golovatchi* differ from those of its sibling species, *R. mediterraneus*, by having a longer tegular apophysis, a sharply pointed lower

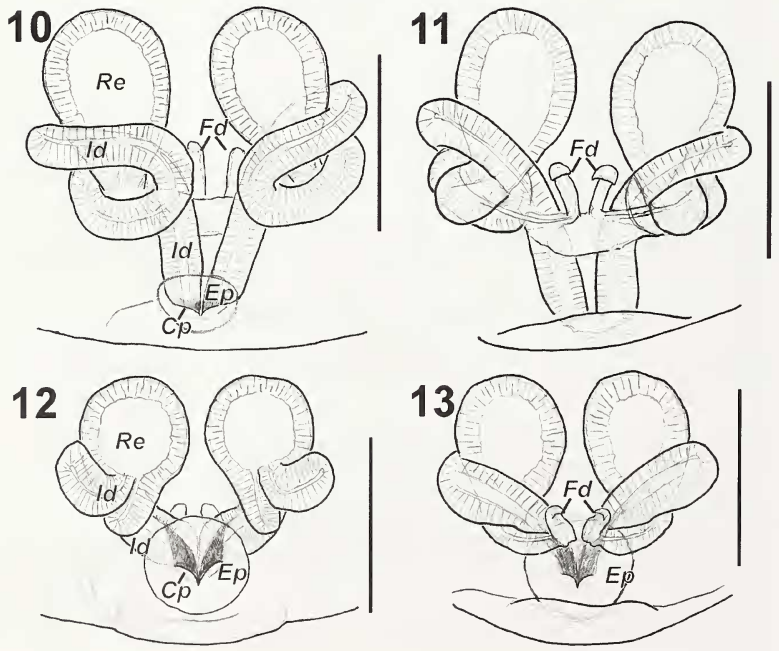
arm of the conductor, a wider "process X" of the embolus and by the hidden base of the embolus (Figs 1-3). Females of *R. golovatchi* differ from *R. mediterraneus* by having a smaller epigynal plate and longer and thinner insemination ducts (cf. Figs 4 & 7, 10 & 12), and also by the position of the fertilisation ducts (anterior to the epigynal plate in *R. golovatchi*, and on the level of the epigynal plate in *R. mediterraneus* (cf. Figs 11 and 13).

Note: We have not provided comparison with the well-known taxa *R. lividus* and *R. arundineti* because they have been well illustrated in numerous publications, and both species differ distinctly from *R. golovatchi*.

Description: Male. Total length 3.2, carapace 1.65 long and 1.15 wide, abdomen 1.65 long and 1.25 wide. Legs see Tab. 1.

Carapace, legs and chelicerae yellow, abdomen gray. Palp as in Figs 1-3, with relatively long tegular apophysis, sharply pointed lower arm of conductor; embolic base hidden and not visible.





Figs. 1-3. Male palp of *Robertus golovatchi*. 1 –retrolateral; 2 – ventral; 3 – prolateral. Scale = 0.2 mm. Abbreviations: *Co* – conductor; *Em* – embolus; *F* – basal outgrowth of conductor; *Ta* – tegular apophysis; *T2* – tegular apophysis 2; *X* – "process X" of the embolus.

Figs. 4-9. Epigynes of *Robertus golovatchi* (4-6) and *R. mediterraneus* (7-9). 4, 7 – intact, ventral; 5, 8 – after maceration, ventral; 6, 9 – after maceration, dorsal. Scale = 0.2 mm.

Figs. 10-13. Macerated epigynes of *Robertus golovatchi* (10-11) and *R. mediterraneus* (12-13). 10, 12 – ventral; 11, 13 – dorsal. Scale = 0.2 mm. Abbreviations: *Cp* – copulatory opening; *Ep* – epigynal plate; *Id* – insemination duct; *Fd* – fertilisation duct; *Re* – receptaculum.

Tab. 1: Leg measurements of the male of *R. golovatchi*

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.20	0.50	1.05	0.80	0.50	4.05
II	1.00	0.40	0.85	0.60	0.50	3.35
III	0.90	0.40	0.60	0.60	0.45	2.95
IV	1.10	0.45	1.05	0.75	0.55	3.90

Tab. 2: Leg measurements of the female of *R. golovatchi*

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.20	0.55	1.00	0.75	0.55	4.05
II	1.00	0.50	0.80	0.65	0.50	3.45
III	0.80	0.45	0.50	0.50	0.45	2.70
IV	1.10	0.50	1.00	0.70	0.45	3.75

Female. Total length 3.4-4.4, carapace 1.7-1.75 long and 1.2-1.35 wide, abdomen 2.0-2.7 long and 1.4-2.1 wide. Legs of the female with carapace 1.7 long see Tab. 2.

Carapace, legs and chelicerae orange-brown, abdomen yellow-gray. Epigyne as in Figs 4-6, 10-11; higher than wide, epigynal plate small, located close to epigastric fold; insemination ducts long and thin, terminal part of duct stretched horizontally and clearly visible on intact epigyne (Fig. 4).

Type Locality: Georgia, Chokhatauri Distr., Bakhmaro Pass, ca. 40 km SE of Nabeghlavi, Meskheti Mt. Ridge, 1550-1700 m a.s.l., *Abies-Picea-Fagus* forest (ESKOV 1987), 41°41'10"N, 42°02'05"E (to determine the geographic coordinates a military map was used).

Fig. 14: Records of *Robertus golovatchi*. Square – original type locality; circles – present records.

Distribution: So far the species is known from three localities in the western Caucasus, in the Lesser Caucasus and in the Caucasus Major (Fig. 14). The localities lie either in the alpine zone or on the edge of the timberline.

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